



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,488	08/04/2006	Reinhold Schwalm	294088US0PCT	6683
22850 7590 01/15/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER BROOKS, CLINTON ALAN				
ART UNIT 4121		PAPER NUMBER		
NOTIFICATION DATE 01/15/2009		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

### Office Action Summary

**Application No.**

10/588,488

**Applicant(s)**

SCHWALM ET AL.

**Examiner**

CLINTON BROOKS

**Art Unit**

4121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 8-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 5/17/07, 8/04/06

## **DETAILED ACTION**

### ***Status of Claims***

Claims 1-15 are currently pending.

### ***Election/Restrictions***

Applicant's election of Group I with traverse and species election of 2,2,5,7,8-pentamethyl-6-chromanolin in the reply filed on November 3, 2008 is acknowledged. The traversal is on the ground(s) that no adequate reasons or examples have been provided to support patentable distinctiveness between the two groups, and that no search burden exists. This is not found to be persuasive because of the following reasons: The references originating from the international search report teach the special technical feature. Since the inventions listed in Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 due to claim 1 lacking a special technical feature being anticipated or obvious over EP0376090 and DE10225943, unity of invention is not present (for instance see rejections herein). Further, under 35 U.S.C 121 and 372, no search burden is necessary for restriction. Thus, the requirement is still deemed proper and is therefore made FINAL.

Claims 8-15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group or species, there being no generic or linking claim. Claims 1-7 with the elected specie are under examination in the instant office action. If the species is not anticipated or obviated then the Examiner will search additional species.

***Priority***

This application claims the benefit of priority under 35 U.S.C 371 to PCT/EP05/01533, filed February 16, 2005. Further, acknowledgement is made of Applicant's claim of foreign priority based on application no. 102004018379.1 filed in Germany on February 20, 2004.

***Information Disclosure Statement***

The Examiner has considered all references from the IDS statements dated May 17, 2007 and August 4, 2006 that have not been marked with a strikethrough. For the record, the English abstract and the admissions of Applicants as to the teachings of JP 60-072980 are considered herein. For consideration of the entire JP 60-072980 document, Applicants should provide an English translation.

***Claim Objections***

1. Claims 1 and 2 is objected because of the following informalities: the chemical structure should be labeled formula III for clarity.
2. Claims 1 is objected because of the following formalities: the use of the word "additionally", after defining R<sup>5</sup> and R<sup>13</sup>. For example: "R<sup>13</sup> is additionally chlorine."

***Non-Statutory Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a

patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

***Non-provisional***

4. Claim 2 is rejected on the ground of nonstatutory obviousness-type double patenting over claim 1 of U. S. Patent No. 7250481 ("the '481 patent") in view of Japanese patent publication no. JP-A-60-072980 to Teruo (the Japanese patent and

an English abstract were provided by Applicant, "the '980 publication") since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent. In addition, Applicant admissions of the teachings of JP-A-60-072980 from paragraph [0005], page 1 are applied.

5. The subject matter claimed in the instant application is fully disclosed in the patent and secondary reference and is covered by the patent since the patent and the application are claiming common subject matter, as follows:

1. The '481 patent teaches a process for preparing a crosslinked hydrogel (column 41, claim 1, line 36), comprising the steps of reacting a polyalcohol A with at least one alpha,beta-ethylenically unsaturated carboxylic acid B (column 41, claim 1, line 37 to 38) in the presence of at least one esterification catalyst C (column 41, claim 1, line 40) and at least one polymerization inhibitor D (column 41, claim 1, line 41), and a solvent E which forms an azeotrope with water (column 41, claim 1, line 42) to form an ester F (column 41, claim 1, line 38 to 41), removing at least a portion of the water formed in from the reaction mixture (column 41, claim 1, line 44), neutralizing the reaction mixture (column 41, claim 1, line 46 to 47), removing the solvent by distillation (column 41, claim 1, line 47 to 48) and/or stripping with a gas inert under the reaction conditions polymerizing the reaction mixture from one of stages a) to i), through, additional monoethylenically unsaturated compounds N (column 41, claim 1, line 53 to 55), and also, at least one further copolymerizable hydrophilic monomer M (column 41, claim 1, line 55 to 57) in the presence of at least one free-radical initiator K (column 41, claim 1, line 51 to 52) and at least one graft

base L (column 41, claim 1, line 51 to 53), drying the reaction mixture (column 41, claim 1, line 61 to 63), grinding and/or sieving the reaction mixture (column 41, claim 1, line 63 to 65), which comprises using, as the polymerization inhibitor D (column 41, claim 1, line 38 to 44).

2. The '481 patent fails to teach a chromanol derivative of formula (III).
3. The '980 publication teaches 2,2,5,7,8-pentamethyl-6-chromanol and 2,2,8-trimethyl-6-chromoanol ('980 publication English abstract). Further, the '980 publication teaches that these compounds act as stabilizers against free radical polymerization or oxidative decomposition. Further, the '980 publication teaches that vinyl monomers are stabilized in a general way, and that acrylic acid in an inert atmosphere by way of example (Applicants admission in background, paragraph [0005]-[0006]). Still further the Applicant admission related to the '980 publication teaches that the chroman derivatives (2,2,5,7,8-pentamethyl-6-chromanol, 2,2,5,7-tetramethyl-6-chromanol and 2,2,8-trimethyl-6-chromanol) showed superiority compared to alpha-tocopherol with regard to the stabilization of acrylic acid (Applicants admission in background, paragraph [0006]). Furthermore, the "purpose" section of the '980 publication English abstract teaches that chroman derivatives are stabilizers for organic materials that are potentially harmless to the human body and domestic animals, and that they are inexpensive. ('980 publication, English abstract, purpose section).
4. Therefore, it would have been prima facie to one of ordinary skill in the art at the time the invention was made to combine the process taught by the '481 patent

with the process taught by the '980 publication. The skilled artisan would have been motivated to do so because he/she would have recognized that the 2,2,5,7,8-pentamethyl-6-chroman derivative was a superior stabilizer for vinyl containing monomers, and he/she would have been motivated to use a molecule that is harmless to humans and domestic animals, and inexpensive. Thus, the skilled artisan would reasonably expect success in this combination.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

***Provisional***

6. Claim 1 and 2 are provisionally rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over claim 7 and 14-16 of copending Application No. 10516702 (the '702 application) in view of the '980 publication cited above. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

7. . The '702 application, as a whole, teaches a process for preparing an ester F of a polyalcohol A with at least one alpha beta 3-ethylenically unsaturated carboxylic acid B (claim 7), reacting a polyalcohol A (glycerol) with at least one alpha, beta-ethylenically unsaturated carboxylic acid B in the presence of at least one esterification catalyst C and at least one polymerization inhibitor D (claim 7), and a solvent E which forms an azeotrope with water (claim 7), to form an ester F (claim 7),



removing a portion of the water formed in a) from the reaction mixture (claim 7), neutralizing the reaction mixture (claim 7), removing the solvent by distillation (claim 7), and stripping with a gas inert under the reaction conditions (claim 7), and a polymerization inhibitor D (claim 7).

8. Regarding claim 2, the '702 application teaches a process for preparing a crosslinked hydrogel (claim 14), comprising the steps of reacting a polyalcohol A with at least one alpha,beta-ethylenically unsaturated carboxylic acid B (claim 7) in the presence of at least one esterification catalyst C (claim 7) and at least one polymerization inhibitor D (claim 7), and a solvent E which forms an azeotrope with water (claim 7) to form an ester F (claim 7), removing at least a portion of the water formed in from the reaction mixture (claim 7), neutralizing the reaction mixture (claim 7), removing the solvent by distillation (claim 7) and/or stripping with a gas inert under the reaction conditions polymerizing the reaction mixture from one of stages a) to i), through, additional monoethylenically unsaturated compounds N (claims 14-16), and also, at least one further copolymerizable hydrophilic monomer M (claims 14-16) in the presence of at least one free-radical initiator K (claim 14-16) and at least one graft base L (claim 14), drying the reaction mixture (claim 14-16), grinding and/or sieving the reaction mixture (claim 14-16).

9. The '702 application fails to teach a chromanol derivative of formula (III).

10. The '980 publication teaches 2,2,5,7,8-pentamethyl-6-chromanol and 2,2,8-trimethyl-6-chrmoanol ('the '980 publication English abstract). Further, the '980 abstract teaches that these compounds act as stabilizers against free radical

polymerization or oxidative decomposition. Further, the '980 application teaches that vinyl monomers are stabilized in a general way, and that acrylic acid in an inert atmosphere by way of example (Applicants admission in background, paragraph [0005]-[0006]). Still further the Applicant admission related to the '980 abstract teaches that the chroman derivatives (2,2,5,7,8-pentamethyl-6-chromanol, 2,2,5,7-tetramethyl-6-chromanol and 2,2,8-trimethyl-6-chromanol) showed superiority compared to alpha-tocopherol with regard to the stabilization of acrylic acid (Applicants admission in background, paragraph [0006]). Furthermore, the purpose section of the '980 abstract teaches that chroman derivatives are stabilizers for organic materials that are potentially harmless to the human body and domestic animals, and that they are inexpensive. ('980 publication, English abstract, "purpose" section).

11. Therefore, it would have been prima facie to one of ordinary skill in the art at the time the invention was made to combine the process taught by the '481 patent with the process taught by the '980 abstract. The skilled artisan would have been motivated to do so because he/she would have recognized that the 2,2,5,7,8-pentamethyl-6-chroman derivative was a superior stabilizer or vinyl containing monomers, and he/she would have been motivated to use a molecule that is harmless to humans and domestic animals, and is inexpensive. Thus, the skilled artisan would reasonably expect success in this combination.

12. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Claim 1 and 2 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 11 and 17 of copending Application No. 10551630 (the '630 application) in view of the '980 abstract cited above. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

14. The '630 application, as a whole, teaches a process for preparing an ester F of a polyalcohol A with at least one alpha beta 3-ethylenically unsaturated carboxylic acid B (claim 7), reacting a polyalcohol A with at least one alpha, beta-ethylenically unsaturated carboxylic acid B in the presence of at least one esterification catalyst C and at least one polymerization inhibitor D (claim 11), and a solvent E which forms an azeotrope with water (claim 11), to form an ester F (claim 11), removing a portion of the water formed in a) from the reaction mixture (claim 11), neutralizing the reaction mixture (claim 11), removing the solvent by distillation (claim 11), and stripping with a gas inert under the reaction conditions (claim 11), a polymerization inhibitor D (claim 11).

15. Regarding claim 2, the '630 application teaches a process for preparing a crosslinked hydrogel (claim 17), comprising the steps of reacting a polyalcohol A with at least one alpha,beta-ethylenically unsaturated carboxylic acid B (claim 11) in the presence of at least one esterification catalyst C (claim 11) and at least one polymerization inhibitor D (claim 11), and a solvent E which forms an azeotrope with water (claim 11) to form an ester F (claim 11), removing at least a portion of the water

formed in from the reaction mixture (claim 11), neutralizing the reaction mixture (claim 11), removing the solvent by distillation (claim 11) and/or stripping with a gas inert under the reaction conditions polymerizing the reaction mixture from one of stages a) to i), through, additional monoethylenically unsaturated compounds N (claims 17), and also, at least one further copolymerizable hydrophilic monomer M (claims 17) in the presence of at least one free-radical initiator K (claim 17) and at least one graft base L (claim 17), drying the reaction mixture (claim 17), grinding and/or sieving the reaction mixture (claim 17).

16. The '630 application fails to teach a chromanol derivative of formula (III).

17. The '980 abstract teaches 2,2,5,7,8-pentamethyl-6-chromanol and 2,2,8-trimethyl-6-chrmoanol and motivation (as discussed above in paragraph 10 of this action).

18. Therefore, it would have been prima facie to one of ordinary skill in the art at the time the invention was made to combine the process taught by the '630 application with the process taught by the '980 abstract. The skilled artisan would have been motivated to do so because he/she would have recognized that the 2,2,5,7,8-pentamethyl-6-chroman derivative was a superior stabilizer or vinyl containing monomers, and he/she would have been motivated to use a molecule that is harmless to humans and domestic animals, and is inexpensive. Thus, the skilled artisan would reasonably expect success in this combination.

19. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections – 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

21. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

22. **Claims 1-6** are rejected under 35 USC 103(a) as being unpatentable over the '481 patent in view of the '980 publication. In addition, Applicant admissions of the

teachings of JP-A-60-072980 from the instant application paragraph [0005] are applied below.

23. Regarding claims 1 and 3-6 the '481 patent, as a whole, teaches a process for preparing an ester F of a polyalcohol A with at least one alpha beta 3-ethylenically unsaturated carboxylic acid B (column 3, lines 56 to 60), reacting a polyalcohol A with at least one alpha, beta-ethylenically unsaturated carboxylic acid B in the presence of at least one esterification catalyst C and at least one polymerization inhibitor D (column 3, lines 61 to 65), and a solvent E which forms an azeotrope with water (column 3, lines 64 to 65), to form an ester F (column 3 line 65), removing a portion of the water formed in a) from the reaction mixture (column 3, line 66 to 67), neutralizing the reaction mixture (column 4 line 1), removing the solvent by distillation (column 4, line 4), and stripping with a gas inert under the reaction conditions (column 4, line 3), a polymerization inhibitor D (column 3, lines 61 to 65), at least one 6-chromanol derivative of the formula (III). The '481 patent teaches a list of polymerization inhibitors including tocopherols, alpha, beta, gamma, delta, and epsilon-tocopherol, tocol, and alpha-tocopherolhydroquinone (, for example a (column 13, line 12 to 13).

24. Regarding claim 2, the '481 patent teaches a process for preparing a crosslinked hydrogel (column 41, claim 1, line 36), comprising the steps of reacting a polyalcohol A with at least one alpha,beta-ethylenically unsaturated carboxylic acid B (column 41, claim 1, line 37 to 38) in the presence of at least one esterification catalyst C (column 41, claim 1, line 40) and at least one polymerization inhibitor D (column 41, claim 1, line 41), and a solvent E which forms an azeotrope with water (column 41, claim 1, line

42) to form an ester F (column 41, claim 1, line 38 to 41), removing at least a portion of the water formed in from the reaction mixture (column 41, claim 1, line 44), neutralizing the reaction mixture (column 41, claim 1, line 46 to 47), removing the solvent by distillation (column 41, claim 1, line 47 to 48) and/or stripping with a gas inert under the reaction conditions polymerizing the reaction mixture from one of stages a) to i), through, additional monoethylenically unsaturated compounds N (column 41, claim 1, line 53 to 55), and also, at least one further copolymerizable hydrophilic monomer M (column 41, claim 1, line 55 to 57) in the presence of at least one free-radical initiator K (column 41, claim 1, line 51 to 52) and at least one graft base L (column 41, claim 1, line 51 to 53), drying the reaction mixture (column 41, claim 1, line 61 to 63), grinding and/or sieving the reaction mixture (column 41, claim 1, line 63 to 65), which comprises using, as the polymerization inhibitor D (column 41, claim 1, line 38 to 44), at least one 6-chromanol derivative of the formula (III).

Further, the '481 patent teaches the use of oxygenous gas (column 15 lines 55 to 64), and specific polyalcohols of claim 6 (column 4, lines 59 to 67). Examples include but are not limited to trimethylol-propane and 1,2-ethylene glycol. In addition, the '481 patent teaches wherein a C1-C4 alkyl ester of a carboxylic acid B (column 5, lines 10 to 11) is used, that transesterification reaction can take place to cross-link (column 4, line 28 to 32), and an esterification catalyst C (column 11 line 66 to column 12 line 7).

25. The '481 patent fails to teach a chromanol derivative of formula (III), and a transesterification catalyst.

26. The '980 publication teaches 2,2,5,7,8-pentamethyl-6-chromanol and 2,2,8-trimethyl-6-chromanol (English abstract). Further, the '980 publication teaches that these compounds act as stabilizers against free radical polymerization or oxidative decomposition. Further, the '980 publication teaches that vinyl monomers are stabilized in a general way, and that acrylic acid in an inert atmosphere by way of example (Applicants admission in background, paragraph [0005]-[0006]). Still further the Applicant admission related to the '980 abstract teaches that the chroman derivatives (2,2,5,7,8-pentamethyl-6-chromanol, 2,2,5,7-tetramethyl-6-chromanol and 2,2,8-trimethyl-6-chromanol) showed superiority compared to alpha-tocopherol with regard to the stabilization of acrylic acid (Applicants admission in background, paragraph [0006]). Furthermore, the purpose section of the '980 abstract teaches that chroman derivatives are stabilizers for organic materials that are potentially harmless to the human body and domestic animals, and that they are inexpensive. (Japanese abstract, purpose section).

27. Therefore, it would have been prima facie to one of ordinary skill in the art at the time the invention was made to combine the process taught by the '481 patent with the process taught by the '980 abstract. The skilled artisan would have been motivated to do so because he/she would have recognized that the 2,2,5,7,8-pentamethyl-6-chroman derivative was a superior stabilizer or vinyl containing monomers, and he/she would have been motivated to use a molecule that is harmless to humans and domestic animals, and is inexpensive. Thus, the skilled artisan would reasonably expect success in this combination.



28. **Claim 7** is rejected under 35 USC 103(a) as being unpatentable over the '481 patent in view of the '980 publication and further in view of United States patent No. 4672105 to Schlosser *et al.* (the '105 patent) and journal article to Otera ("the Otera article", *Chem. Rev.* **1993**, 93, 1449-1470).

29. The combined teachings of the '481 patent and the '980 publication have been discussed above. The combination of references fails to teach a C1 to C4-alkyl ester of a carboxylic acid used and, a transesterification catalyst.

However, The '105 patent teaches transesterifying a (meth)acrylic acid ester derived from an alcohol of 1-4 carbon atoms with a transesterifying polyhydric alcohol in the presence of at least one metal compound catalyst system (abstract).

30. The Otera article teaches that "[o]n some occasions, transesterification is more advantageous than the ester synthesis from carboxylic acids and alcohols. For instance, some carboxylic acids are sparingly soluble in organic solvents and accordingly difficult to subject to homogeneous esterification whereas esters are commonly soluble in most organic solvents" (introduction, paragraph 1). In addition, the Otera article teaches that "[t]he ester-to-ester transformation is particularly useful when the parent carboxylic acids are labile and difficult to isolate" (introduction, paragraph 1).

31. Therefore, it would have been prima facie to one of ordinary skill in the art at the time the invention was made to combine the process taught by the '481 patent and '333 patent with the process taught by the '105 patent as motivated by the teachings of the Otera article. The skilled artisan would have been motivated to do so because

he/she would have recognized that the transesterification process can be used for carboxylic acid substrates that are sparingly soluble, labile, and difficult to isolate. Thus, the skilled artisan would reasonably expect success in this combination.

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLINTON BROOKS whose telephone number is (571)270-7682. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:00 PM EST.

33. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PATRICK NOLAN can be reached on (571)272-0847. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

34. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cab

/Patrick J. Nolan/  
Supervisory Patent Examiner, Art Unit 4121